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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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EXAMINER
ARNOLD JR, JAMES

| | |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
| 1764 | |

DATE MAILED: 04/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/976,195

Applicant(s)

KHARE, GYANESH P.

Examiner

James Arnold, Jr.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 October 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) 34-50 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17-33 is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-33, drawn to a sorbent and a process of making a sorbent, classified in class 208, subclass 244.
- II. Claims 34-48, drawn to a desulfurization process, classified in class 208, subclass 208R.
- III. Claims 49-50, drawn to a desulfurization product, classified in class 208, subclass 16.

The inventions are distinct, each from the other because of the following reasons:

Inventions of Group I and Group II are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions have different functions as the invention of Group I relates to a sorbent and process of producing the sorbent but does not claim a method of using it and Group II relates to a desulfurization process.

Inventions of Group I and Group III are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions have different functions as the invention of Group I relates to a sorbent and a process of producing the sorbent but does not claim a method of using it and Group II relates to the product of a desulfurization process.

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Inventions of Group II and Group III are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by a materially different process such as hydrodesulfurization.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Lynda Jolly on March 26, 2003 a provisional election was made WITH traverse to prosecute the invention of Group I, claims 1-33. Affirmation of this election must be made by applicant in replying to this Office action. Claims 34-50 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,2,10, and 14 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Kinoshita et al. (USPN 6,068,824).

The Kinoshita reference discloses a sorbent composition comprising a zinc oxide, a carrier, and a reduced-valence noble metal with a valence less than the valence of the metal of the reduced-valence noble metal in the common oxidized state, with a reduced valence less than two, or a reduced valence of zero. See Abstract and Column 2, lines 27-34.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims ~~2~~ 3-9, 11-13, and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kinoshita et al. (USPN 6,068,824).

The reference discloses a composition wherein the reduced-valence noble metal is present in the range of from about 0.01 to about 10 weight percent. See Column 3, lines 20-25. The reference discloses a composition wherein the amount of zinc oxide varies according to the specific components of the adsorbent utilized. See Tables 3, 4, and 5. The reference discloses a

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sorbent composition comprising inorganic carrier components including silica, alumina, titania, zirconia, diatomaceous earth, synthetic zeolites, natural zeolites, and combinations thereof. See Column 3, lines 30-55. The reference discloses a composition containing the reduced-valence noble metals Platinum, Palladium, Ruthenium, and Rhodium. See Column 3, lines 3-12. The reference discloses a particulate sorbent composition with a particle diameter average in the range of 1 to 10 mm. See Column 7, lines 18-37.

The reference does not disclose the full range of weight percent for the reduced-valence noble metal from 0.01 to about 25 weight percent. The reference does not disclose the inorganic carriers expanded perlite, silica gel, kieselguhr, zinc aluminate, zinc titanate, zinc silicate, magnesium aluminate, and magnesium titanate. The reference does not disclose the range of weight percent for the alumina compound from about 1 to about 30 weight percent nor the silica compound weight percent of from about 5 to about 85 weight percent. The reference does not disclose a composition wherein the reduced-valence noble metal is selected from the group consisting of iridium and osmium. The reference does not disclose a sorbent composition is a particulate in the form of a microsphere having a mean particle size in the range of from about 1 micrometer to about 500 micrometers. The reference does not disclose zinc oxide in the range of from about 10 to about 90 weight percent.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the full range of weight percent for the reduced-valence noble metal from 0.01 to about 25 weight percent because an overlapping range is disclosed by the reference and it would be appropriate to adjust the weight percent in any way still that still renders the sorbent composition effective. It would have been obvious to one having ordinary

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skill in the art at the time the invention was made to utilize the inorganic carrier group consisting of expanded perlite, silica gel, kieselguhr, zinc aluminate, zinc titanate, zinc silicate, magnesium aluminate, and magnesium titanate because of the silica and alumina components in some of the carriers and because of the strength of the metal compositions. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the range of weight percent for the alumina compound from about 1 to about 30 weight percent nor the silica compound weight percent of from about 5 to about 85 weight percent because the reference discloses the use of alumina and silica as carriers and it would be appropriate to adjust the percent in any way that still renders the sorbent composition effective. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a composition wherein the reduced-valence noble metal is selected from the group consisting of, iridium and osmium because as noble metals these elements have similar properties platinum, palladium, ruthenium, and rhodium. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a sorbent composition that is a particulate in the form of a microsphere having a mean particle size in the range of from about 1 micrometer to about 500 micrometers because the reference discloses that the shape of the sorbent is not particularly limited and because the reference generally discloses the use of a sorbent composition and it would be appropriate to adjust the sorbent composition's size in any way that still renders the composition effective. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a composition wherein zinc oxide is present in the range of from about 10 to about 90 weight percent because the amount of zinc oxide varies according to the specific components of the adsorbent utilized, and because the

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reference discloses the use of zinc oxide in the sorbent composition and it would be appropriate to adjust the weight percentages while not diluting the effectiveness of the sorbent composition.

Allowable Subject Matter

Claims 17-33 are allowable. The following is a statement of reasons for the indication of allowable subject matter: The prior art does not disclose a process for making a sorbent composition suitable for desulfurization comprising the steps of (a) admixing zinc oxide and a carrier to provide a support mix; (b) particulating the support mix to provide a support particulate; (c) incorporating said support particulate with a noble metal to provide a promoted particulate comprising an unreduced noble metal; and (d) reducing said promoted particulate to provide a reduced-valence noble metal.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sughrue et al. (USPN 6,254,766). The Sughrue patent discloses a sorbent composition comprising nickel, a zinc oxide, and a carrier.

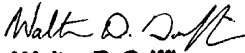
Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Arnold, Jr. whose telephone number is 703-305-5308. The examiner can normally be reached on Monday-Thursday 8:30 AM-6:00 PM; Fridays from 8:30 AM-5:00 PM with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 703-308-6824. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3014 for regular communications and 703-305-3014 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0196.

ja
April 7, 2003


Walter D. Griffin
Primary Examiner